1. A receiver-dryer comprising:

a substantially cylindrical vessel having a base wall; a side wall extending generally in a direction away from said base wall; and a concave end wall terminating said side wall and disposed substantially opposite of said base wall to define an interior chamber; and

a refrigerant inlet pipe mounted to said base wall extending into said interior and chamber of said vessel, said refrigerant inlet pipe extending in a direction generally away from said base wall within said interior of said vessel and terminating in an exit end facing said concave end wall, said refrigerant inlet pipe adapted for directing refrigerant into contact with said concave end wall such that said refrigerant impinges on said concave end wall to disperse said refrigerant into a gaseous phase that accumulates in said upper portion of said vessel and a liquid phase that drains down said concave end wall and said side wall for heat transfer cooling and for accumulation in said lower portion of said vessel.

2. The receiver-dryer as claimed in claim 1, wherein said concave end wall further comprises an outer surface and wherein said side wall comprises an outer surface.

3. The receiver-dryer as claimed in claim 2, further comprising cooling fins in intimate contact with said outer surface of said concave end wall of said vessel.

4. The receiver-dryer as claimed in claim 3, further comprising cooling fins in intimate contact with said outer surface of said side wall of said vessel.

5. The receiver-dryer as claimed in claim 4, wherein the combined surface area of said cooling fins is greater than the surface area of the interior surface of said vessel within said upper portion of said vessel.

6. The receiver-dryer as claimed in claim 1, further comprising a mounting bracket having a socket portion in intimate contact with said concave end wall of said vessel.

7. The receiver-dryer as claimed in claim 1, wherein the surface area of said socket portion of said mounting bracket is greater than the surface area of the interior surface of said vessel within said upper portion of said vessel.

8. The receiver-dryer as claimed in claim 1 wherein said refrigerant inlet pipe is centrally disposed within said vessel.

9. The receiver-dryer as claimed in claim 1 wherein said exit end of said refrigerant inlet pipe is positioned a predetermined distance away from said concave end wall, said predetermined distance being proximate the radius of said concave end wall.

10. The receiver-dryer as claimed in claim 1, wherein said concave end wall is spun closed and substantially spherical in shape.

11. An integrated receiver-dryer-condenser for use in an air conditioning system, said integrated receiver-dryer-condenser comprising:

a condenser having:

a first vertically disposed header tank;

a second vertically disposed header tank spaced opposite said first vertically disposed header tank;

a core member positioned between said first and second vertically disposed header tanks, said core member having a plurality of horizontally disposed passages in fluidic communication with said first and second vertically disposed header tanks for communicating refrigerant fluid therebetween;

an inlet in one of said first and second vertically disposed header tanks, said inlet adapted for receiving a superheated gaseous phase of said refrigerant fluid;

an intermediate outlet port in one of said first and second vertically disposed header tanks, said intermediate port adapted for exiting a mixture of a gaseous phase and a liquid phase of said refrigerant fluid;

an intermediate inlet port in one of said first and second vertically disposed header tanks, said intermediate inlet port adapted for receiving a dispersed liquid phase of said refrigerant fluid;

an outlet in one of first and second vertically disposed header tanks, said outlet adapted for exiting a sub-cooled liquid phase of said refrigerant fluid; and

a receiver-dryer in fluidic communication with said condenser, said receiver-dryer having:

a substantially cylindrical vessel having a base wall; a side wall extending generally in a direction away from said base wall; and a concave end wall terminating said side wall and disposed substantially opposite of said base wall to define an internal chamber;

a refrigerant inlet pipe in fluidic communication with said intermediate outlet port of one of said first and second vertically disposed header tanks, said refrigerant inlet pipe extending into said internal chamber, said refrigerant inlet pipe extending in a direction away from said base wall within said internal chamber of said vessel and terminating in an exit end facing said concave end wall, said refrigerant inlet pipe adapted for directing refrigerant into contact with said concave end wall such that said refrigerant impinges on said concave end wall to disperse said refrigerant into a gaseous phase that accumulates in said upper portion of said internal chamber of said vessel and a liquid phase that runs down the interior surfaces of said concave end wall and said side wall toward said base wall for heat transfer cooling and for accumulating said refrigerant liquid in said lower portion of said vessel; and

a refrigerant outlet pipe in fluidic communication with said refrigerant liquid in said lower portion of said vessel and with said intermediate

inlet port in one of said first and second vertically disposed header tanks of said condenser.

12. The receiver-dryer-condenser as claimed in claim 11 wherein said concave end wall further comprises an outer surface and wherein said sidewall comprises an outer surface.

13. The integrated receiver-dryer-condenser as claimed in claim 11, further comprising cooling fins in intimate contact with said outer surface of said concave end wall of said vessel.

14. The integrated receiver-dryer-condenser as claimed in claim 12, further comprising cooling fins in intimate contact with said outer surface of said side wall of said vessel.

15. The integrated receiver-dryer-condenser as claimed in claim 13, wherein the combined surface area of said cooling fins is greater than the surface area of the interior surface of said vessel within said upper portion of said vessel.

16. The integrated receiver-dryer-condenser as claimed in claim 11, further comprising a mounting bracket having a socket portion in intimate contact with said concave end wall of said vessel.

17. The integrated receiver-dryer-condenser as claimed in claim 11, wherein the surface area of said socket portion of said mounting bracket is greater than the surface area of the interior surface of said vessel within said upper portion of said vessel.

18. The integrated receiver-dryer-condenser as claimed in claim 11 wherein said refrigerant inlet pipe is centrally disposed within said vessel.

19. The integrated receiver-dryer-condenser as claimed in claim 11 wherein said exit end of said refrigerant inlet pipe is positioned a predetermined distance away from said concave end wall, said predetermined distance being substantially equal to the radius of said concave end wall.

20. The integrated receiver-dryer-condenser as claimed in claim 11, wherein said concave end wall is spun closed and substantially spherical in shape.

21. A method of sub-cooling a refrigerant within an air conditioning system, said method comprising the steps of:

receiving a superheated gaseous phase of a refrigerant fluid in a condensing stage of a condenser;

condensing said superheated gaseous phase of said refrigerant fluid within a first condensing stage of said condenser into a mixture of a gaseous phase and a liquid phase;

communicating said mixture into an internal chamber of a vessel;

dispersing said mixture against a concave surface of said vessel, thereby separating said liquid phase from said gaseous phase wherein said liquid phase adheres to the walls of said internal chamber of said vessel and flows along said walls toward a lower portion of said vessel through a desiccant material, and accumulates in the bottom thereof thereby cooling said gas and liquid phases for improved separation of said liquid phase from said gaseous phase of said mixture; and

communicating said liquid phase of said refrigerant out of said vessel into a separate second stage of said condenser for improved sub-cooling of said liquid phase of said refrigerant fluid.

22. An air conditioning system comprising:

means for receiving a superheated gaseous phase of a refrigerant fluid in a condensing stage of a condenser;

means for condensing said superheated gaseous phase of said refrigerant fluid within a first stage of said condenser into a mixture of a gaseous phase and a liquid phase;

means for communicating said mixture into a vessel;

means for dispersing said mixture onto a concave surface of said vessel, thereby separating said liquid phase from said gaseous phase of said mixture wherein said liquid phase flows toward a lower portion of said vessel over a desiccant material, and further thereby cooling said gas and liquid phases for

improved separation of said liquid phase from said gaseous phase into said liquid phase; and

means for communicating said liquid phase out of said vessel and into a separate second stage of said condenser from improved sub-cooling of said liquid phase of said refrigerant fluid.